REMARKS

This Amendment is responsive to the final Office Action dated June 5, 2007. Applicant has amended claims 1, 2, 6, 8, 21-23, and 31. Claims 1-15, 17-32, 34, and 35 are pending.

Summary of Examiner Interview

In a telephonic interview initiated by Applicant on July 25, 2007, Applicant's attorney of record, Jessica H. Kwak, and Examiner Alyssa M. Alter discussed the present application. In particular, the parties generally discussed the disqualification of Engmark et al., U.S. Patent Application Publication No. 2004/0082977, as a reference under 35 U.S.C. § 103(c). Applicant's representative noted that M.P.E.P. 706.02(l)(2) generally set forth the requirements for disqualifying a reference as prior art under 35 U.S.C. § 103(c). Examiner Alter appeared to agree that Applicant properly disqualified Engmark et al. as prior art under 35 U.S.C. § 103(c) in the Amendment dated September 5, 2006. However, Examiner Alter requested that Applicant respond to the Office Action dated June 5, 2007 because a Supplemental Office Action would not be provided. No claims were discussed, and no exhibits were introduced during the interview.

Amendments to the Specification

Applicant has amended paragraph [0058] as originally filed to add further written description of FIG. 5 as originally filed. The amendments to paragraph [0058] are fully supported by the specification and figures as originally filed. No new matter has been added by way of the amendments to paragraph [0058] of the specification.

Claim Rejection Under 35 U.S.C. § 101

In the final Office Action, claims 21 and 31 were rejected under 35 U.S.C. § 101 because the claimed invention is directed to non-statutory subject matter. The Office Action specifically objected to the phrase "delivers stimulation to a brain" as inferentially reciting the body. Applicant respectfully disagrees with the Office Action's conclusion and maintains that claims 21 and 31 each claim a device that delivers stimulation to the brain of the patient, which is statutory subject matter. However, in order to expedite prosecution, Applicant has amended

claims 21 and 31 to recite that the device is "adapted to deliver stimulation to the brain of a patient," as suggested by the Office Action. Withdrawal of this rejection is requested.

Claim Rejection Under 35 U.S.C. § 112

The Office Action rejected claims 2, 6, 21, 23, and 31 under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicant regards as the invention. More particularly, the Office Action stated that claims 2, 6, 21, 23 and 31 provide no further structure and provide a mere recitation of intended use for such structure. Applicant continues to traverse the rejection of claims 2, 6, and 23 under 35 U.S.C. § 112, second paragraph on the basis that claims 2, 6, and 23 further structurally limit the claims from which they depend. In particular, claims 2, 6 and 23 define the orientation or location of structures recited in the claims from which they depend with respect to each other and the cranium. In order to expedite prosecution, however, Applicant has amended claims 2, 6, and 23 to further clarify the structural limitations recited therein.

Applicant also traverses the rejection of claims 21 and 31 35 U.S.C. § 112, second paragraph because claims 21 and 31 further limit the claims from which they depend by reciting a function that must be performed by the structure recited in the claims from which they depend. As provided in M.P.E.P. 2173.05(g), devices may be defined in terms of the functions they perform. In addition, M.P.E.P. § 2171 provides guidance as to the requirements of 35 U.S.C. § 112, second paragraph, and states that a claim is definite when "the scope of the claim is clear to a hypothetical person possessing the ordinary level of skill in the pertinent art." Applicant submits that the scope of each of claims 21 and 31 is clear and not vague because claims 21 and 31 properly define the implantable medical device of claims 20 and 30, respectively, by what function the device is adapted to perform, which would be easily understood by a person of ordinary skill in the art.

In view of the foregoing remarks, Applicant submits that claims 2, 6, 21, 23 and 31, as amended, particularly point out and distinctly claim the subject matter being claimed, as required by 35 U.S.C. 112, second paragraph. Applicant respectfully requests that the rejection be withdrawn.

Claim Rejection Under 35 U.S.C. §§ 102(b) and 102(e)

The Office Action rejected claims 1-2, 8-10, 15, 16, 18-21, 32, 33 and 35 under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 5,674,260 to Weinberg. Claims 22, 23, 25, 26, and 28-35 were rejected under 35 U.S.C. §102(e) as being anticipated by U.S. Patent Application Publication No. 2004/0082977 to Engmark et al. ("Engmark"). Applicant respectfully traverses the rejections. Weinberg and Engmark fail to disclose or suggest each and every feature of the claimed invention, as required by 35 U.S.C. § 102(b) and 102(e), and provide no teaching that would have suggested the desirability of modification to include such features. In addition, Applicant notes that claims 16 and 33 were previously cancelled, and, therefore, were improperly rejected.

Weinberg

For example, Weinberg fails to disclose or suggest an implantable medical device comprising a circuit board coupled to a plurality of integrated circuits and a plurality of discrete components, where the circuit board comprises first and second opposing surfaces, each of the integrated circuits is located on the first surface, and each of the discrete circuit components is located on the second surface, and where at least one of the integrated circuits or discrete components are arranged on a respective one of the first or second surfaces to substantially conform to a predetermined nonlinear profile that is based on a second profile of a housing that houses the first and second surfaces of the circuit board, as required by Applicant's independent claim 1 as amended.

In support of the rejection of independent claim 1, the Office Action characterized the platform 36 and substrate 38 as a circuit board. In particular, the Office Action found that FIG. 3 of Weinberg illustrates "a group of integrated circuits 34 . . . mounted atop a platform 36" and "[u]nderneath the platform 36 are additional electronic components . . . which are mounted to a substrate and which communicate with the integrated circuits 34."[1]

First, Applicant disagrees that the platform 36 and substrate 38 define a circuit board. Second, even if the platform 36 and substrate 38 define a circuit board, Weinberg fails to disclose or even suggest that the integrated circuits 34 or electronic components are arranged on the

[1] Office Action at pages 3-4.

platform 36 and substrate 38 to substantially conform to a predetermined nonlinear profile that is based on a profile of a housing that houses the platform 36 and substrate 38. Rather, Weinberg is completely silent as to any relationship between a profile of the integrated circuits 34 or electronic components on the platform and substrate 38 and a profile of an of the housing that houses the first and second surfaces platform 36 and substrate 38.

With respect to the rejection of claim 8, which depends from claim 1, the Office Action reasoned "the housing that houses the circuit board is also at a non-linear profile as seen in figure 3, 4A and 4B, as the contoured lid 32."[2] However, the lid 32 is not a housing that houses the platform 36 and substrate 38. The lid 32 merely covers one side of the platform 36 and substrate 38.[3] In order to expedite prosecution, Applicant has amended claim 1 to further clarify that the recited housing houses the first and second surfaces of the circuit board. On the other hand, as shown in FIGS. 6 and 7, the lid 32 in the Weinberg reference is merely adjacent to one side of the platform 36 and substrate 38. While Weinberg does disclose a housing 12 that houses first and second surfaces of the platform 36 and substrate 38, the integrated circuits 34 or electronic components are not arranged on the platform 36 and substrate 38 to substantially conform to a predetermined nonlinear profile that is based on a profile of the housing 12. Accordingly, Weinberg fails to disclose each and every element of independent claim 1.

Claims 2, 8-10, 15, and 18-21 depend directly or indirectly from Applicant's independent claim 1 and are allowable therewith. In addition, Applicant notes that Weinberg fails to disclose each and every element of dependent claims 2, 8-10, 15, and 18-21. For example, Weinberg lacks any teaching that would have suggested that "the integrated circuits are arranged on the first surface of the circuit board such that the heights of the integrated circuits predominantly increase from an edge of the first surface of the circuit board to a center of the first surface of the hybrid circuit board," as recited by Applicant's claim 9. In support of the rejection, the Office Action stated that Weinberg's FIG. 3 shows integrated circuit 40 at a smaller height on the edge of the first surface and integrated circuit 34 at a larger height towards the center of the first surface.[4] However, claim 9 recites that each of the integrated circuits has a height, and not that the integrated circuits are mounted at different heights. Thus, claim 9 recites a dimension of the

[2] *Id.* at pages 4-5.
[3] Weinberg at col. 3, ll. 34 and 44-49.
[4] Office Action at page 5.

integrated circuit itself, rather than a dimension of the integrated circuit and circuit board together.

The height difference of the integrated circuits shown in FIG. 3 of Weinberg is attributable to platform 36, rather than a dimension of the integrated circuits themselves. FIG. 3 of Weinberg illustrates integrated circuits that mounted on two surfaces that are located in different planes. In particular, the integrated circuits 34 are mounted atop platform 36, and an additional integrated circuit 40 is mounted directly to the substrate 38 that is underneath the platform 36.[5] Accordingly, Weinberg fails to even suggest a plurality of integrated circuits arranged on a common first surface of a circuit board, much less teach or suggest the arrangement according to height required by Applicant's claim 9.

Furthermore, in view of Applicant's disclosure (e.g., FIG. 7 and related disclosure in specification), a person of ordinary skill would understand "the heights of the integrated circuits" in claim 9 to refer to the heights of the circuits *themselves*, rather then a height defined relative to some arbitrary point in space. There is no disclosure in Weinberg that suggests that the integrated circuit 40 itself has a different height then the other circuits 34. Instead, the integrated circuits 34 are located on different surfaces. Weinberg makes no mention of arranging the integrated circuits based on their heights and certainly does not disclose or suggest arranging the integrated circuits such that the heights of the integrated circuits predominantly increase from an edge of the first surface of the circuit board to a center of the first surface of the hybrid circuit board, as required by Applicant's claim 9.

As another example of the deficiencies of Weinberg, Weinberg fails to disclose an implantable medical device that comprises a housing that includes a major surface and a side surface, where the side surface includes a feedthrough that is oriented at a non-parallel, non-perpendicular angle relative to the major surface, as recited by Applicant's independent claim 32. In support of the rejection of claim 32, the Office Action concluded that Weinberg discloses a feedthrough that is located in an electronic package 30 to enable a wire connection to a resistor board 68 via wires 70.[6] The Office Action included a modified copy of FIG. 5 of Weinberg that included a "box placed around a portion of the implantable medical device [that] indicates 'a

[5] Weinberg at col. 3, ll. 19-26.
[6] Office Action at page 5.

major surface of the housing' that is at 'a non-parallel, nonperpendicular angle' from the feedthrough."[7] Applicant has copied the modified drawing of FIG. 5 from the Office Action below.

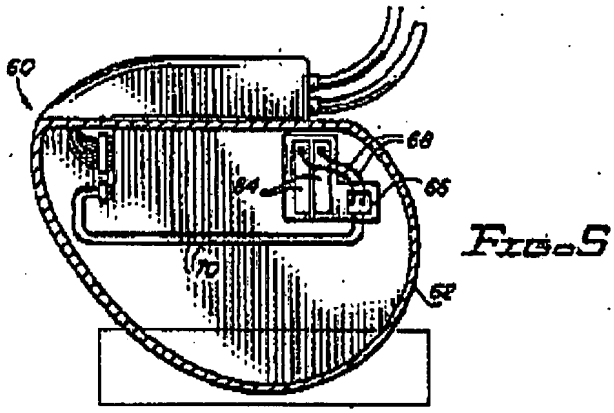

FIG. 5

Applicant respectfully disagrees with the Office Action's analysis of Weinberg. Weinberg does not mention a feedthrough, and the Office Action appears to be relying on an improper finding of an inherent disclosure to support the rejection of independent claim 32 (as well as the rejection of claims 15, 16, 18, 33, and 35). The fact that a certain characteristic may be present in the prior art is not sufficient to establish the inherency of that result or characteristic.[8] The Office Action must provide a basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristic necessarily flows from the teachings of the applied prior art.[9]

No reasonable support has been provided for the determination that Weinberg discloses a feedthrough, much less a feedthrough that is oriented at a non-parallel, non-perpendicular angle relative to a major surface of a housing of the medical device. Applicant submits that the allegedly inherent characteristic does not necessarily flow from the teachings of Weinberg. Both the resistor board and electronics package are located within the Weinberg device housing and Weinberg does not suggest that these elements are separated by some other housing. Rather, FIGS. 3, 6, and 7 of Weinberg illustrate an electronics package 30 that includes exposed electrical components 72. Weinberg does not disclose that the exposed electrical components 72

[7] *Id.*
[8] *In re Rijckaert*, 9 F.3d 1531, 1534, 28 USPQ.2d 1955, 1957 (Fed. Cir. 1993); MPEP § 2112.
[9] *Ex parte Levy*, 17 USPQ.2d 1461, 1464 (Bd. Pat. App. & Inter. 1990) (emphasis in original); MPEP 2112.

and resister board 68 are separated by a housing, and, accordingly, the electronics package does not necessarily include a feedthrough "to enable a wire connection to the resistor board,"[10] as alleged by the Office Action. In other words, it does not appear that a feedthrough would be required to electrically couple the electronics package and resistor board 68. Consequently, a person of ordinary skill certainly would not consider a feedthrough to be necessarily present in the Weinberg device.

In addition, it is unclear how the box drawn around a portion of the implantable medical device (see the modified FIG. 5 copied above) indicates a major surface of the housing that is at a non-parallel, non-perpendicular angle from any feedthrough. First, Weinberg does not even mention a feedthrough, much less illustrate an orientation of the feedthrough relative to the box drawn by the Examiner in FIG. 5. Thus, Weinberg cannot teach a feedthrough that has the claimed orientation relative to the major surface of the housing. Second, Applicant respectfully traverses the designation of the portion of the device in the box as a "major surface of the housing." It is unclear to what portion the Office Action is referring to as the major surface, and on what reasoning the Office Action is relying on to designate the portion as a major surface of the housing. Weinberg cannot anticipate each and every element of independent claim 32 because Weinberg fails to disclose a feedthrough or even a relationship between a feedthrough and a housing of the medical device.

For at least these reasons, Weinberg fails to disclose each and every limitation set forth in Applicant's claims 1, 2, 8-10, 15, 16, 18-21, 32, 33, and 35. Withdrawal of the rejection under 35 U.S.C. § 102(b) is respectfully requested.

Engmark

Engmark fails to anticipate Applicant's claim 22, 23, 25, 26, and 28-35. For example, Engmark fails to disclose or suggest an implantable medical device comprising a circuit board and a telemetry coil that encircles the circuit board, where the circuit board is located substantially within a first plane, the telemetry coil is located substantially within a second plane that is substantially parallel to the first plane, and the telemetry coil is substantially uneclipsed by

[10] Office Action at page 5.

the circuit board in a direction substantially perpendicular to at least one of the first or second planes, as required by Applicant's independent claim 22, as amended.

In support of the rejection of claim 22, the Office Action found that claim 22 "does not set forth the orientation at which the telemetry coil is substantially uneclipsed by the circuit board."[11] Based on this reasoning, the Office Action found that FIG. 8 of Engmark shows a telemetry coil 32 that is substantially uneclipsed by a circuit board from a top view of the implantable system.[12] With the present Amendment, Applicant has amended claim 22 to clarify the orientation at which the telemetry coil is substantially uneclipsed by the circuit board, i.e., in a direction substantially perpendicular to at least one of the first or second planes.

Engmark neither discloses a telemetry coil that encircles a circuit board, nor a telemetry coil that is substantially uneclipsed by the circuit board in a direction substantially perpendicular to at least one of the first or second planes in which the circuit board and telemetry coil, respectively, are located. FIG. 3 illustrates a top view of the Engmark device 10 with the upper housing half 12 removed, and FIG. 4 illustrates the top view with both the upper housing half 12 and electrical module 28 removed.[13] The electrical module 28 includes the circuit board 27.[14] As FIGS. 3 and 4 of Engmark illustrate, the antenna coil 32 is not visible from the top view when the electrical module 28 is in place. The electrical module 28 covers the antenna coil 32, and therefore, antenna coil 32 does not encircle the circuit board 27, as required by Applicant's claim 22.

If the circuit board 27 and antenna coil 32 in the Engmark reference are located in substantially parallel planes, as the Office Action's position appears to be, the direction substantially perpendicular to at least one of the first or second planes is shown in FIGS. 3 and 4. FIGS. 3 and 4 of Engmark illustrate the electrical module 28 covering the antenna coil 32, and, as a result, the telemetry coil in Engmark is substantially eclipsed by a circuit board in a direction substantially perpendicular to at least one of the first or second planes in which the circuit board and telemetry coil, respectively, are located. In addition, FIG. 8 clearly illustrates the circuit board 27 eclipsing the antenna coil 32 in a direction substantially perpendicular to the

[11] *Id.* at page 6.
[12] *Id.*
[13] Engmark at paragraphs [0020] and [0022].
[14] *Id.* at paragraph [0021].

substantially parallel planes (i.e., the planes in which the circuit board 27 and coil 32 are located). Accordingly, Engmark fails to disclose the requirements of Applicant's independent claim 22.

Claims 23, 25, 26, and 28-31 depend from independent claim 22 and are allowable therewith. In addition, Applicant notes that Engmark fails to disclose each and every element of dependent claims 23, 25, 26, and 28-31. For example, Applicant's claim 25 requires an implantable medical device with a plurality of integrated circuits and a plurality of discrete components, wherein the integrated circuits and discrete components are coupled to the circuit board, and a thickness of the circuit board including the integrated circuits and discrete components is less than or equal to 3.8 millimeters. Applicant's claim 26 requires an implantable medical device wherein a radial thickness of the housing is less than or equal to 5.2 millimeters. In support of the rejection of these claims, the Office Action cited Engmark's paragraph [0039], which describes a minimum distance between the antenna coil and the housing as well as a minimum distance between the antenna coil and the circuit board. However, Engmark does not disclose the thickness of the circuit board that includes the integrated circuits and discrete components or the thickness of the housing. Therefore, the cited passage relied on by the Office Action fails is irrelevant with regard to the requirements of claims 25 and 26. Engmark does not disclose or suggest a thickness of the circuit board including the integrated circuits and discrete components of less than or equal to 3.8 millimeters or a radial thickness of the housing of less than or equal to 5.2 millimeters, as required by Applicant's claims 25 and 26 respectively.

Engmark also fails to anticipate Applicant's independent claim 32, which recites an implantable medical device that comprises a housing that includes a major surface and a side surface, where the side surface includes a feedthrough that is oriented at an angle relative to the major surface. In support of the rejection of claim 32, the Office Action characterized the electrical feedthroughs 16 of Engmark as a feedthrough located on the side surface, and a feedthrough that is oriented at a non-parallel, non-perpendicular angle relative to the major surface of the device housing. However, as shown in FIG. 1, the feedthroughs 16 of the Engmark device are located on a major surface of the housing rather than a side surface.

In addition, Engmark fails to disclose a feedthrough that is oriented at a non-parallel, non-perpendicular angle relative to the major surface of the housing. Engmark does not disclose the orientation of the feedthroughs 16 relative to a major surface of the housing. Therefore, Engmark does not disclose each and every element of claim 32. Claims 33-35 depend from independent claim 32, and are also patentable over Engmark.

For at least these reasons, the Office Action has failed to establish a prima facie case for anticipation of claims 22, 23, 25, 26, and 28-35 by Engmark under 35 U.S.C. § 102(e). Withdrawal of this rejection is requested.

Claim Rejection Under 35 U.S.C. § 103

The Office Action rejected claims 1-6 and 9-21 under 35 U.S.C. § 103(a) as being unpatentable over Engmark in view of Chen (U.S. Patent No. 5,954,751), and rejected claims 7 and 24 under 35 U.S.C. § 103(a) as being unpatentable over Engmark in view of in view of Laird et al. (U.S. Patent No. 6,445,956). Applicant respectfully traverses these rejections.

Engmark Is Disqualified as Prior Art Under 35 U.S.C. 103(c)

The rejection of claims 1-7 and 9-21 based on Engmark under section 103 are precluded by section 103(c). As recognized in the Office Action, Engmark is prior art to the present application only under section 102(e). Further, Applicant submits that, at the time the presently claimed invention was made, Engmark and the claimed invention were commonly owned, or subject to an obligation of assignment to the same person. The assignment of Engmark to Medtronic, Inc. was recorded on February 2, 2003 at reel/frame 013719/0147. The assignment of the present invention to Medtronic, Inc. was recorded on May 21, 2004 at reel/frame 015351/0310.

For at least this reason, the Office Action has failed to establish a prima facie case for non-patentability of Applicant's claims 1-7, 9-21 and 24 under 35 U.S.C. § 103(a). Withdrawal of the rejection of claims 1-6 and 9-21 under 35 U.S.C. § 103(a) is respectfully requested.

CONCLUSION

All claims in this application are in condition for allowance. Applicant respectfully requests reconsideration and prompt allowance of all pending claims. Please charge any additional fees or credit any overpayment to deposit account number 50-1778. The Examiner is invited to telephone the below-signed attorney to discuss this application.

Date: September 5, 2007

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